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SIMULATION TECHNOLOGY II

(ADST II)

SYNTHETIC THEATER OF WAR-ARCHITECTURE

(STOW-A)

160TH SPECIAL OPERATIONS AVIATION REGIMENT (AIRBORNE) TRAINING EXERCISE

DO #0085

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FINAL REPORT

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The Synthetic Theater of War-Architecture (STOW-A) 160th Special Operations Aviation Regiment (SOAR) (Airborne) Training Exercise was conducted at the 160th SOAR Training Facility at Fort Campbell, KY, from September 28 to October 9, 1998. The exercise was performed as Delivery Order (DO) #85 under the Lockheed Martin Advanced Distributed Simulation Technology II (ADST II) Contract administered by the U.S. Army Simulation, Training, and Instrumentation Command (STRICOM). The experiment was sponsored by The National Simulation Center and the Army Modeling and Simulation Office. The experiment utilized a synthetic environment that employed virtual simulations to depict Special Operations air and ground missions executing two joint operations scenarios in realistic combat situations

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EXECUTIVE SUMMARY

The Synthetic Theater of War-Architecture (STOW-A) 160th Special Operations Aviation Regiment (SOAR) (Airborne) Training Exercise was conducted at the 160th SOAR Training Facility at Fort Campbell, KY, from September 28 to October 9, 1998. The exercise was performed as Delivery Order (DO) #85 under the Lockheed Martin Advanced Distributed Simulation Technology II (ADST II) Contract administered by the U.S. Army Simulation, Training, and Instrumentation Command (STRICOM). The experiment was sponsored by The National Simulation Center and the Army Modeling and Simulation Office. The experiment utilized a synthetic environment that employed virtual simulations to depict Special Operations air and ground missions executing two joint operations scenarios in realistic combat situations. The scenarios were executed on the Joint Readiness Training Center (JRTC) Shugart/Gordon terrain database. These scenarios were designed to produce effective operations orders and concepts, and induce the commanders and their planning staff to make tactical decisions that affected battle outcomes. The objectives of the effort were:

1) Integrate on-site assets, which included a live command and control MH-60, and configure them to conduct a Distributive Interactive Simulation (DIS) exercise using manned simulators at Fort Campbell and Hurlburt Field.

2) Increase the battle staff synchronization of both the Air Mission Commander (AMC) and Ground Force Commander (GFC) through training and mission rehearsals at the 160th SOAR (A) facility.

3) To establish training system architecture that will provide the 160th SOAR with a simulation capability to refine and validate tactics for multi-aircraft all-weather operations.

Development of the software modifications to the Interactive Tactical Environment Management System (ITEMS) and Janus and the initial integration of software models were conducted at the Carmel Applied Technologies Inc. facility, Training and Doctrine Command (TRADOC) Analysis Center (TRAC)-Monterey, and at the 160th SOAR. An initial network analysis and coordination meeting was in April 1998. Two sub-system evaluations and initial integration efforts at the 160th SOAR facility that occurred in June and July followed this initial effort. Upon completion of these tests, a rehearsal was conducted August 10-14 to assess sub-systems status and prepare for the execution phase in September. After the August sub-system evaluation all systems were declared ready for the execution phase which was scheduled from September 28 to October 9. An additional mini-exercise was also conducted September 9-10 at the request of the Commander 2nd Battalion 160th SOAR in order to familiarize his staff with the capabilities of the systems to be used in the exercise.

The entire exercise was scheduled over a twelve-day period. The days were allocated to developing the operations plans, staff planing and training the personnel. The actual training exercise window was four days. This four-day period included two days to execute the exercise with two different Ranger and Aviation companies and one day for planning and implementing scenario modifications if required.

In accordance with the Government Statement of Work (SOW), this Final Report includes a description of the experiment, its conditions and conduct, and lessons learned. This report addresses the interconnectivity of simulation systems, the manned simulators, and the integration of Government Furnished software models. This report does not include discussion of data analysis nor conclusions as to achievement of the tactical or training objectives of the experiment.

1. INTRODUCTION

1.1 Purpose

The purpose of this final report is to document the ADST II effort that supported the Synthetic Theater of War-Architecture (STOW-A) 160th Special Operations Aviation Regiment (SOAR) (Airborne) Training Exercise. This report includes a full description of the experiment, its architectural design, its conditions, and lessons learned.

1.2 Delivery Order Overview

The STOW-A 160th SOAR (A) Training Exercise was performed, initially as a Mini-Feasibility Analysis effort under the Dismounted Warrior Network (DWN) DO # 55, and was executed as DO #0085 under the Lockheed Martin Corporation (LMC) ADST II contract with STRICOM. The contract, a Unilateral Delivery Order, required LMC to analyze the technical and experimental architecture of the experiment, configure and integrate the 160th SOAR assets for the experiment, and assist in data reduction.

1.3 Experiment Overview.

Currently, there is a stand alone simulation capability to support AMC, GFC, or Battle Staff Synchronization for Training or Mission Rehearsal at the 160th SOAR. To expand this capability to include multiple players, a series of simulation exercises will be conducted at the 160th SOAR, increasing the simulation support, incrementally. The initial simulation 160th SOAR (A) capabilities included Janus/ITEMS for force representation. TOPScene was used as a visualization tool and the MH-47 Combat Mission Simulators (CMS), MH-60 CMS and AC-130U Battle Management Center (BMC) were introduced through DIS to complete the aviation support. This first STOW-A 160th SOAR (A) simulation exercise was conducted September 28 to October 9, 1998.

1.4 Technical Overview

The technical approach to The STOW-A 160th SOAR (A) Training Exercise involved the analysis of the technical and experimental architecture of the experiment, development of software, and the configuration and integration the 160th SOAR assets into the experiment configuration.

Software development was conducted initially at the off-site locations of Carmel Applied Technologies Incorporated, at TRAC Monterey and then on-site at the 160th SOAR. Two Sub-system Evaluations (SSE) were scheduled for June 8-12, 1998 and July 13-17, 1998 to allow for customer interface and evaluation. These SSE periods provided an opportunity for on-site corrections/modifications, which allowed for a "spiral development" methodology, with multiple "code, test, fix/change" iterations in order to meet the customer's requirements. Once the synthetic environment functional tests were completed, a full rehearsal was conducted. The rehearsal was conducted from August 10-14, with subsequent approval to

start the experiment. An additional mini-exercise was also conducted September 9-10 at the request of the Commander 2nd Battalion 160th SOAR in order to familiarize his staff with the capabilities of the systems to be used in the exercise. The actual experiment period lasted four days. This four-day period included two days to execute the exercise with two different Ranger companies, two different Aviation companies, and one day for planning and implementing scenario modifications if required.

The general objectives of the SSE periods were:

1. Establish system high-level compatibility confirmation.

2. Establish simulation to simulation, live to simulation and simulation to live communications.

3. Establish acceptability confirmation by replicating the conditions of the training scenario.

4. Establish terrain database confirmation.

5. Establish network reliability confirmation.

6. Establish DIS Enumeration confirmation.

7. Checkout the training scenario.

8. Establish a plan for site layout and site configuration.

9. Evaluate basic entity reactions.

10. Dry-run individual data collection procedures and operator training procedures.

11. Provide SoundStorm support for Ranger training.

The SSEs were an effective use of the Integrated Product Team (IPT) process involving the customer and the contractor. Each SSE period had specific objectives with detailed test procedures published in order to effectively evaluate the engineering issues and ensure readiness of the sub-systems to be used in the exercise. At the conclusion of each SSE an assessment was made on the current status of the program and the priorities established for future actions. Minutes were published after each SSE to effectively track action items and define responsibilities. The test procedures and minutes for each SSE have been consolidated into an "IPT Process and Results Document" which is published separately and also on file in the ADST II Configuration Management (CM) library in Orlando. This document can be obtained upon request. The CM number of this document is listed below in paragraph 2, Applicable Documents.

2. Applicable Documents

2.1 Government

-ADST II Work Statement for The Synthetic Theater of War-Architecture (STOW-A) 160th Special Operations Aviation Regiment (SOAR) (Airborne) Training Exercise, May 11, 1998, AMSTI-97-WO89

-ADST II Work Statement for The Synthetic Theater of War-Architecture (STOW-A) 160th Special Operations Aviation Regiment (SOAR) (Airborne) Training Exercise, May 11, 1998, AMSTI-97-WO89 Annex D DWN

-Draft 160th SOAR (A) STOW-A Handbook, Version 1.1, September 30, 1998

2.2 Non-Government

-IPT Process and Results Document, ADST-II-MISC-160T-9800331, November 10, 1998

-Bill of Materials for 160th SOAR(A) STOWEX, ADST-II-CBOM-160T-9800346, November 10, 1998

-SOAR (A) DISCS 1.0 Version Description Document, ADST-II-MISC-160T-9800349, October 30, 1998

3. System Description

3.1 System Configuration and Layout

The 160th SOAR Training Facility contained and was configured with simulators, networks, Semi-automated Forces (SAF) capabilities, displays for monitoring the battlefield, and utilities to facilitate exercise automated data collection and reduction capabilities. The facility consisted of two separate buildings. Wolcott Hall was designated as the training audience facility and housed the manned CMS simulators and the Janus player stations with SoundStorm. Frank Hall was designated as exercise control and housed the ITEMS Semi-automated Forces (SAF) stations, Janus/PASS Support Element, Simulyzer data collection stations, and provided video that was used for viewing the exercise. Figures 1 and 2 depict the network diagram of Wolcott Hall and Frank Hall.
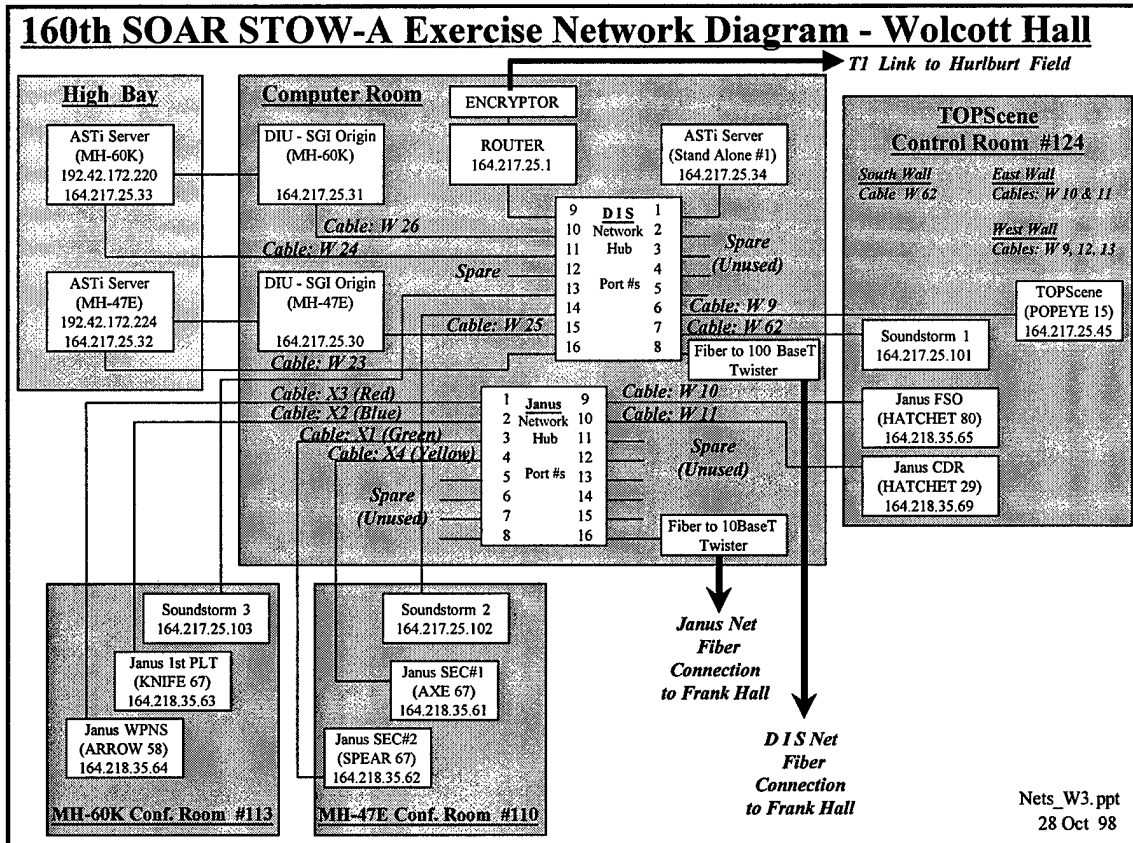
Figure 1 Exercise Network Diagram Wolcott Hall

160th SOAR STOW-A Exercise Network Diagram - Frank Hall
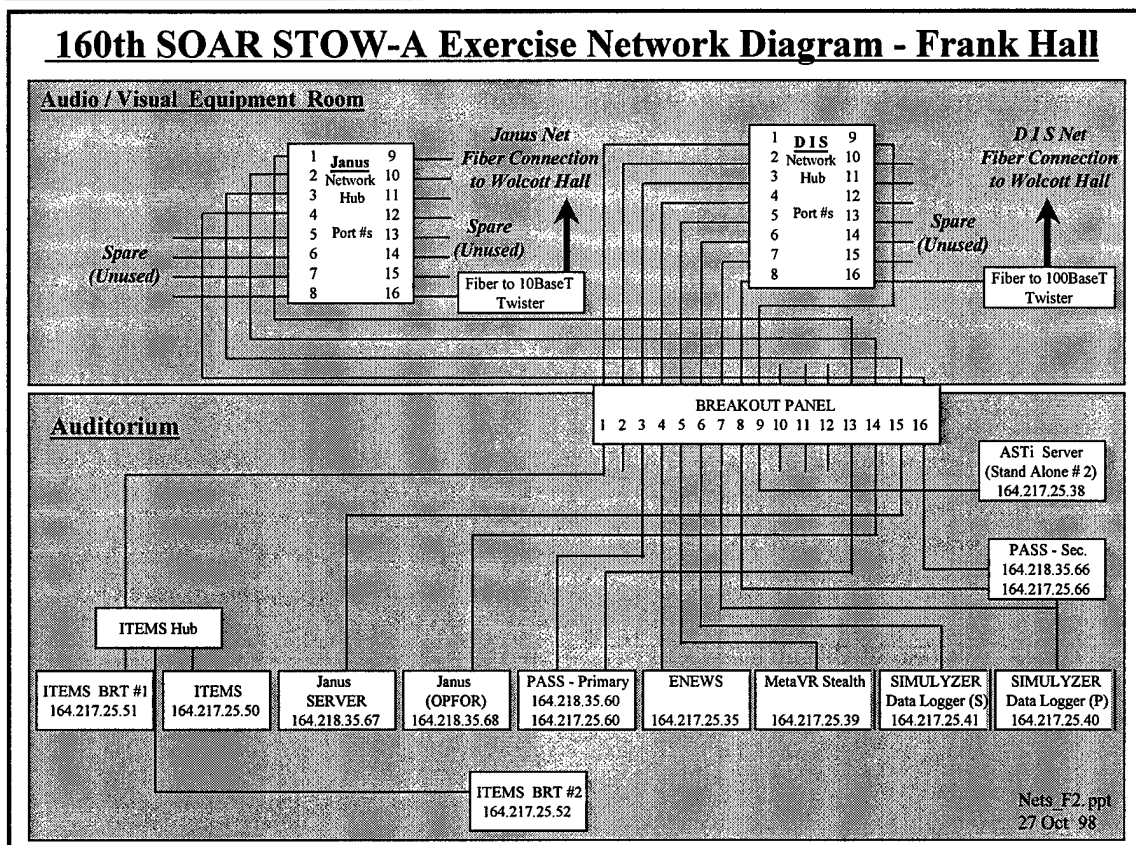
Figure 2 Exercise Network Diagram Frank Hall

The experiment was conducted using assets interconnected on Ethernet local area networks (LANs) via twisted pair cable and fiber optic links between buildings. Additionally, a secure long haul T1 network provided connectivity with the AC-130 BMC at Hurlburt Field. Simulation assets used Distributed Interactive Simulation (DIS) 2.04 protocol. Table 1 lists assets used at the160th SOAR.

ASSET	PURPOSE	PROTOCOL
Combat Mission Simulator MH-60	Manned MH-60 Simulator used for the flight lead for the exercise.	DIS 2.04
ITEMS/ENEWS Stealth	Battlefield Visualization Display for Company Commander Role-player	DIS 2.04
ITEMS	Semi-automated forces used to replicate air components for the exercise	DIS 2.04
Janus	Tactical simulation used by the ground force for the exercise	DIS 2.04
TOPScene	Pre Exercise ground preview	DIS 2.04
SoundStorm	Sound support for Rangers	DIS 2.04
ASTi Radio Simulator	Simulated Radio Communications	DIS 2.04
ENEWS	Terrain Map of the battlefield for Exercise Control (simulated C2 display)	DIS 2.04
Simulyzer	Record of DIS PDUs for Data Collection & Analysis	DIS 2.04

Table 1 Exercise Assets

3.2 Description of System Components

This section discusses the description, functionality and operation of the system components, which includes the Government Furnished Equipment (GFE) and their integration with the hardware at the 160th SOAR facility. Figures 3 and 4 show the ASTi Radio Diagrams for the Wolcott Hall and Frank Hall facilities.

Communications were primarily conducted over both ASTi radio simulators and GFE live radios. The communication inventory at Ft. Campbell consisted of four ASTi Digital Aural-cue/Communications System (DACS), five Remote Interface Units (RIUs), twelve EBC Radio Control Units (RCUs), two helicopter Combat Mission Simulators (MH47 & MH60

CMSs) audio systems, and a live-to-virtual communications bridge. In addition to the Ft.Campbell inventory an AC-130U aircraft simulation system and various live GFE radios were used in the exercise.
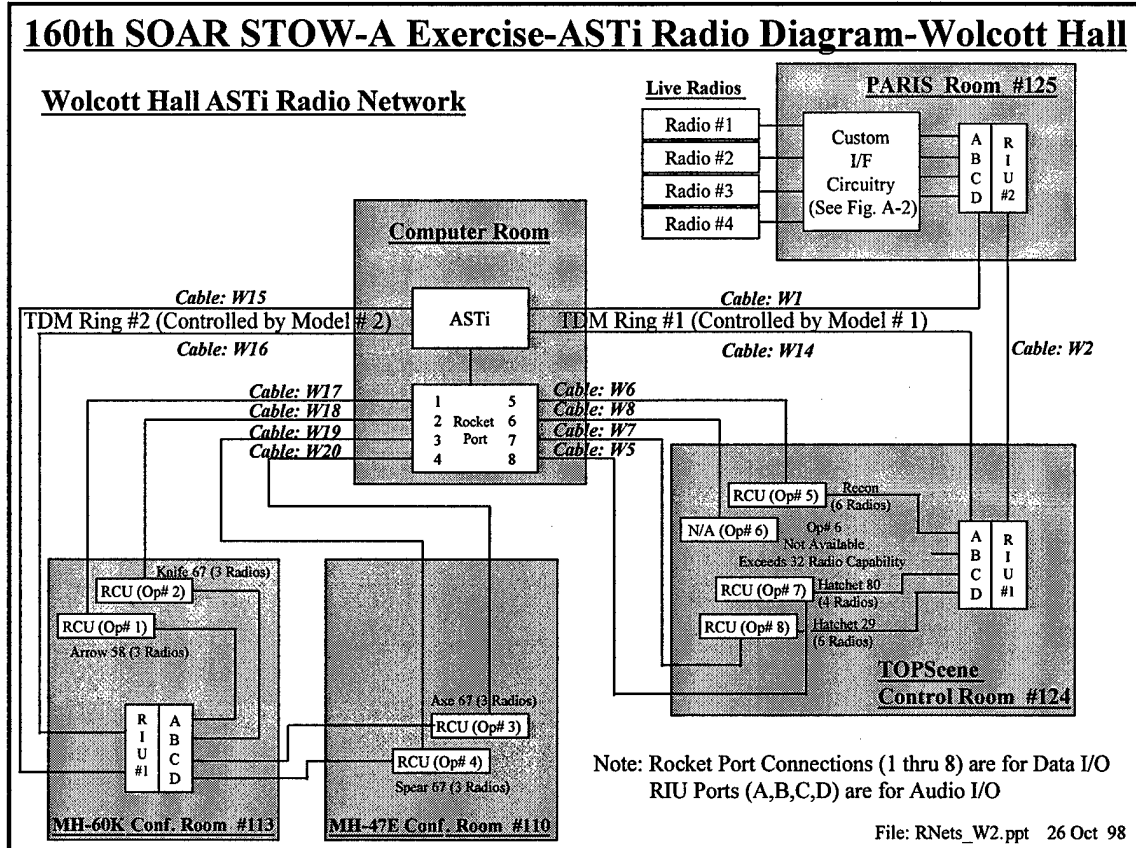
Figure 3 ASTi Radio Diagram for Wolcott Hall

160th SOAR STOW-A Exercise - ASTi Radio Diagram-Frank Hall
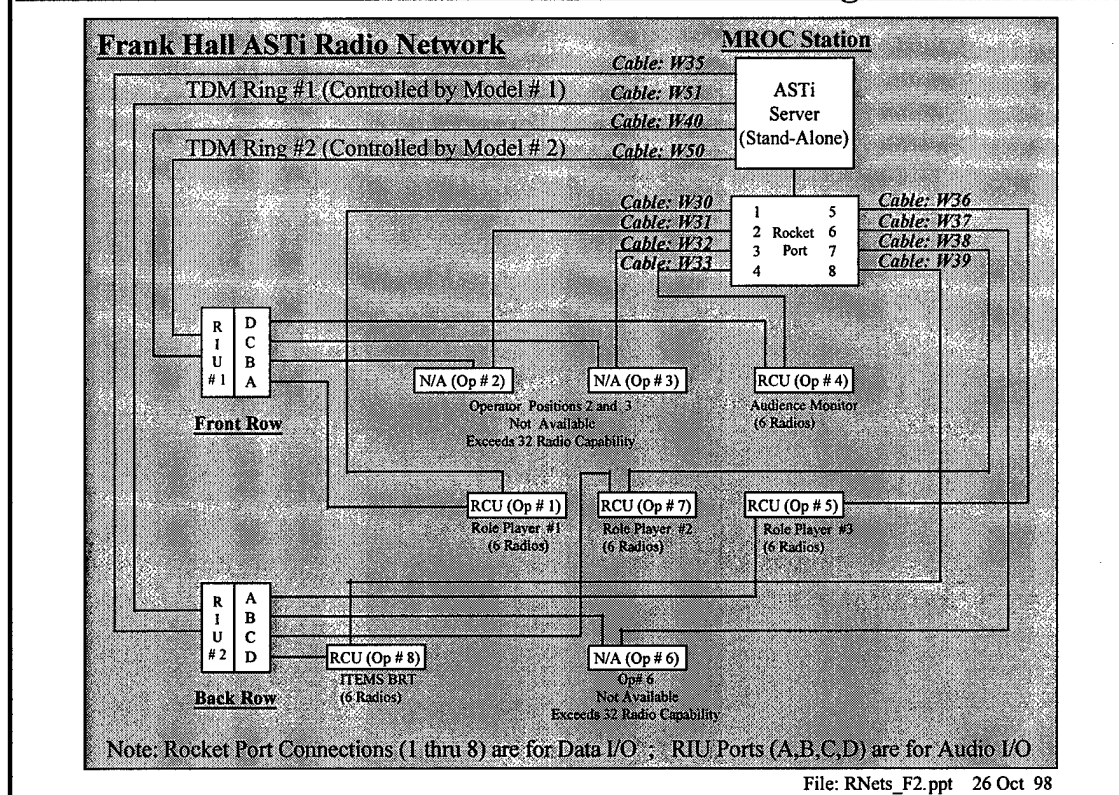
Figure 4 ASTi Radio Diagram for Frank Hall

3.2.1   MH-60K CMS

The MH-60K CMS is a full-motion high-fidelity visual training device. It replicates the full functionality of the respective aircraft systems including; Forward Looking Infrared Radar (FLIR), Multi Mode Radar (MMR), Digital Map (DigMAP) and Integrated Avionics System (IAS). This allows for realistic tactical training within a fully tailorable geo-specific virtual environment. Tactical Operations include but are not limited to: Night Vision Goggles (NVG), A/R, Threat, Ship Operations, Qualification and Continuation Training and Mission Rehearsal. A DIS compliant interface allows local area and long haul networking of these training devices and allows for collaborative mission planning, execution and Mission Rehearsal. The MH-60K CMS provided the Flight Lead helicopter for the Direct Action scenario.

3.2.2   MH-47 CMS

The MH-47E CMS is a full-motion high-fidelity visual training device. It replicates the full functionality of the respective aircraft systems including; FLIR, MMR, DigMAP and IAS. This allows for realistic tactical training within a fully tailorable geo-specific virtual environment. Tactical Operations include but are not limited to: NVG, A/R, Threat, Ship Operations, Qualification and Continuation Training and Mission Rehearsal. A DIS

compliant interface allows local area and long haul networking of these training devices and allows for collaborative mission planning, execution and Mission Rehearsal. The MH-47E CMS provided helicopter support to the Ranger Reconnaissance Detachment (RRD) scenario.

3.2.3 AC-130U BMC

The AC-130U BMC is not an asset at the 160th SOAR facility but was used via a secure long haul T1 capability to Hurlburt Field. The AC-130U BMC replicates the fire control systems of the AC-130U allowing simulated weapons delivery, sensor/weapons alignment, and diagnostic maintenance operations. The visual, radar, sensor, and electromagnetic combat environment databases are correlated to each other for real-time display. The real-time display is a high-resolution perspective scene generator, including day/night, radar, All Light Level Television (ALLTV), and Infrared Detection Set (IDS) capabilities. Databases for simulated strike operations against a wide variety of targets including fixed cultural features, and fixed or moving models in the applicable visual, electromagnetic, sensor, and radar presentation. All AC-130U gunfire modes are provided to allow full interaction between supported crew positions. A DIS compliant interface allows for collaborative mission planning, execution and Mission Rehearsal. The AC-130U BMC provided initial Pre-H-Hour fire suppression and responded to calls for fire.

3.2.4 TOPScene

TopScene is a deployable mission rehearsal system. It was used to familiarize the pilots with the terrain prior to execution. TOPScene uses computer generated-imagery based terrain databases that allow crews and planners to preview routes and mission areas in three-dimensional real-world target areas prior to mission execution. TopScene also has the capability to be networked in a DIS compatible environment and can augment the air component by providing a free-flying networked air vehicle.

3.2.5 Interactive Tactical Environment Management System (ITEMS)

ITEMS was used as the SAF for the rotary winged aircraft for the exercise to augment the MH-60K and fill out the Blue Force. ITEMS is a flexible software package that allows the user to generate a target rich tactical scenario without being limited to hardcoded sets of data. The user creates all elements within a scenario. An off-line Database Management System (DBMS) handles all this real life information and stores it using an object-oriented approach. High fidelity simulation models to run real-time tactical scenarios then use this data.

ITEMS models equipment such as weapons, sensors, communications and countermeasures but also fully represents the dynamic capability of entities enabling them to pursue various navigation modes as well as engage in fixed and rotary wing air combat. As a scenario unfolds, the user is presented with up-to-date information on 2-D and 3-D displays and easy to read pages. These pages allow the user to observe, understand and interact with the simulation. Modifying aspects of a scenario during run time is also possible. During the automatic execution of a scenario, the user can select any entity to take over and control as if inside the platform.

3.2.6 Janus

Janus is a Battle Simulation for Battle Focus Training. Janus was used by the 75th Rangers as the ground force interaction for both friendly and enemy forces. It is targeted to Company/Team Level. The training audience interfaces directly with the simulation using workstations. The communication between members of training audience is via tactical communications.

Janus is a closed, stochastic, multi-sided, interactive entity level conflict simulation used as an exercise driver, training, analysis, and mission planning. Janus is closed in the sense that the operator does not know the disposition of the opposing force. The operator only has complete knowledge of the force under his control. The laws of probability governs detections, the outcome of direct fire engagements, mine clearing, etc. Janus operators direct their forces against those controlled by operators at other workstations. Janus models ground vehicles, helicopters, soldiers, artillery, obstacles, mines, obscurants, chemical weapons, sensors, radar, and weather. Janus has a number of tools for terrain, systems database, and scenario development and has a replay capability. As the Army's Battle Focus Trainer, Janus is used to train unit commanders in tactics and command and control procedures. It is targeted to the Company/Team level, but can play brigade level exercises.

TRAC - Monterey developed the Janus variant used for this exercise. This version is DIS compliant. Janus communicates with other DIS sites through a DIS bridge known as PDU Adapter Software System (PASS). PASS exchanges data with Janus, reads and writes PDUs to the DIS network, performs dead reckoning, and translates between Universal Transverse Mercater (UTM) and geodetic coordinates. Together, Janus and PASS go by the name Distributed Interactive Simulation Combat System (DISCS). A copy of the Janus and PASS software used in the exercise has been placed in the ADST II CM Library. The 4mm tapes are numbered MD0783 and MD0784. This exercise used a variant of Janus 6.3 called "SOAR (A) 1.0."

3.2.7 Effectiveness of Naval Electronic Warfare Systems (ENEWS) Plan View Display (PVD)

The ENEWS Program was established at the Naval Research Laboratory with the responsibility to support EW related system analysis. Through computer simulations of complex electromagnetic environments, scenarios are developed that provide unique advantages in designing, specifying, and evaluating EW systems.

ENEWS, through a DIS compliant interface, provided a dynamic two-dimensional view of virtual and computer generated forces (CGF) air component assets as they ingress along the depicted tactical route structure.

3.2.8 Simulation Analyzer (Simulyzer)

Simulyzer is a software tool used for data collection, analysis, and exercise playback in the DIS environment. Simulyzer was developed by TASC as a data collection and analysis toolset and has grown to be an effective After Action Review (AAR) system. Simulyzer's

graphical user interface (GUI) based modules provide real time network troubleshooting and monitoring of PDU data during collection and is an efficient analysis tool for PDU data. This software runs on the IRIX and SunOS UNIX platforms and is designed on the kernel module criteria that ensures system flexibility, usability, and extensibility.

Simulyzer's flexibility allows for the development of user specified modules that can be added in order to perform specific tasks. Basic tasks are: data logging of DIS PDU data from the local area network (LAN), PDU filtering, monitoring and playing COMM traffic and outputting the sound through the systems audio ports, exercise playback with variable speeds and time in log file, and PDU generation to augment an exercise.

3.2.9 SoundStorm

SoundStorm was used to support the Ranger mission. SoundStorm 3D is a DIS compliant three-dimensional battlefield sound generator. Sounds are generated as a result of the SoundStorm receiving Entity State, Fire, and Detonation DIS Protocol Data Units (PDUs) from other DIS simulations on the network. The SoundStorm hardware consists of an Intel Pentium PC running the LINUX operating system. This PC is equipped with two high-fidelity sound cards and four amplified speakers to allow for a four-channel "surround sound" aural effect. The system allows the user to attach an "ear point" to a specific DIS entity (e.g. soldier) at any location on the battlefield. Sounds are heard from the perspective of the entity that the ear point is attached to. Six-dimensional aural realism is maintained by biasing the sound output slightly to the left/right, front/rear, and above/below. In addition, the volume level of the sound output is varied to account for the distance of an entity from the selected ear point. SoundStorm contains digital sounds for aircraft, ground vehicles, direct and indirect fire munitions, and missiles.

In the 160th SOAR STOW exercise, three SoundStorm systems were utilized. One SoundStorm was present in the Company Commander's Janus cell and one SoundStorm was placed in each of the Platoon Leaders' Janus cells. Ear points were attached to the entities corresponding to the locations of the role players on the battlefield in an effort to create a sensation of being immersed in battle. Both the platoon leaders and company commander were forced to react to combat situations and communicate on tactical radios by having to overcome the loud volume of the battlefield sounds as they would in the field. During the exercise, battlefield sounds contributed to the overall realism of the training experience by helping to immerse the soldiers in a simulated battle environment.

3.2.10 ASTi Radios

DIS radio communications were primarily conducted using various configurations of the ASTi DACS integrated with the MH-60 and the MH-47 simulators and hand-held radio control terminals at Ft. Campbell. The T-1 DIS connections also permitted communications with the AC-130U simulator at Hurlburt Field. A custom interface was specially designed and fabricated to provide a communications bridge with live radios. Hand-held RCUs provided individual role players with the capabilities to communicate on multiple radio networks with the other simulators and live aircraft in the exercise. Communications were in both clear and secure radio modes with simulated crypto tones. The individual locations of

the radio controllers are depicted in Figures 3 and 4. The DIS to live radio interface and the RCU diagrams are shown in Figures A-2 and A-3 in Appendix A.

3.2.11 ENEWS and ITEMS Stealth

Stealths were used to simulate a notional battlefield visualization tool. The Stealth permits the controller to fly around the virtual battlefield and view the simulation without interfering with the action. The features of the Stealth allow the observer to survey the virtual battlefield from a variety of different perspectives.

3.2.12 DIS LAN Network

The computer network interfaces consisted of various hubs, fiber transceivers, T-1, and LAN connections as shown in Figures 1 and 2. The encrypted T-1 connection provided the DIS Network interface with Hurlburt for the AC-130. The encryption keys were updated as required to meet the security requirements.

Separate networks were allocated for the DIS and Janus traffic. This initially provided network isolation for solving various DIS network-loading investigations and later permitted flexibility for the various Janus practice runs. The IP address allocations for both the DIS and Janus networks are shown in Tables 2 and 3.

The DIS network consisted of two 16 port switches configured as hubs with the Ethernet LAN connections for each DIS workstation/computer in both Frank Hall and Wolcott Hall. Fiber transceiver networks were used to interconnect the Frank Hall and Wolcott Hall DIS Network switches (hubs).

The Janus network also consisted of two 16 port switches configured as hubs with the Ethernet LAN connections for each Janus workstation/computer in both Frank Hall and Wolcott Hall. Fiber transceiver networks were also used to interconnect the Frank Hall and Wolcott Hall Janus network switches (hubs). A PASS workstation with two Ethernet cards was used in both Frank Hall and Wolcott Hall to provide the inter-network operability between the Janus and DIS networks.

Wolcott Hall							DIS NET	
	I.P. Address				Cable #	Type	Hub Port #	
ASTi DACS - Std.Alone-DIS	164	217	25	34	unlabeled	10 Base T	1	
Spare							2	
Spare							3	
Spare (Room 124 [TopScene] - West Wall)					W12		4	
Spare (Room 124 [TopScene] - West Wall)					W13		5	
TOPSCENE	164	217	25	45	W9	10 Base T	6	
Sound Storm # 1	164	217	25	101	W62	10 Base T	7	
Fiber to 100 Base T Twister (Note: Link to Frank Hall)	-	-	-	-	-	100 Base T	8	
Router (Note: Link to Frank Hall)	164	217	25	1	unlabeled	100 Base T	9	
SGI Origin - DIU - MH-60K	164	217	25	31	W26	100 Base T	10	
ASTi DACS - MH-60K - DIS	164	217	25	33	W24	10 Base T	11	
Spare							12	
Sound Storm # 3	164	217	25	103	SS # 3	10 Base T	13	
Sound Storm # 2	164	217	25	102	SS # 2	10 Base T	14	
SGI Origin - DIU - MH-47E	164	217	25	30	W25	100 Base T	15	
ASTi DACS - MH-47E - DIS	164	217	25	32	W23	10 Base T	16	
ASTi DACS - MH-47E - DIU	192	42	172	224	W21	10 Base T	-	
ASTi DACS - MH-60K - DIU	192	42	172	220	W22	10 Base T	-	
							Janus NET	
	I.P. Address				Cable #	Type	Hub Port #	
Janus WPNS (Arrow 58)	164	218	35	64	X3 (red)	10 Base T	1	
Janus 1st PLT (Knife 67)	164	218	35	63	X2 (blu)	10 Base T	2	
Janus Sec #2 (Spear 67)	164	218	35	62	X1 (grn)	10 Base T	3	
JanusSec #1 (Axe 67)	164	218	35	61	X4 (yel)	10 Base T	4	
Spare							5	
Spare							6	
Spare							7	
Spare							8	
Janus FSO (Hatchet 80)	164	218	35	65	W10	10 Base T	9	
Janus CDR (Hatchet 29)	164	218	35	69	W11	10 Base T	10	
Spare							11	
Spare							12	
Spare							13	
Spare							14	
Spare							15	
Fiber to 10 Base T Twister (Note: Link to Frank Hall)	-	-	-	-	-	10 Base T	16	

Table 2. Network Address Allocations for Wolcott Hall

Frank Hall						DIS NET	
	I.P. Address			*Cable #*	*Type*	*Hub Port #*	
ITEMS Hub	See Below			#1	10 Base T	1	
Spare						2	
PASS-Primary (DIS Port)	164	217	25	60	#3	10 Base T	3	
ENEWS	164	217	25	35	#4	100 Base T	4	
MetaVR Stealth	164	217	25	39	#5	100 Base T	5	
Simulyzer (Secondary)	164	217	25	41	#6	100 Base T	6	
Simulyzer (Primary)	164	217	25	40	#7	100 Base T	7	
PASS-Secondary (DIS Port)	164	217	25	66	#8	100 Base T	8	
ASTi DACS - Std.Alone-DIS	164	217	25	38	#9	10 Base T	9	
Spare						10	
Spare						11	
Spare						12	
Spare						13	
Spare						14	
Spare						15	
Fiber to 100 Base T Twister (Note: Link to Wolcott Hall)	-	-	-	-	-	100 Base T	16	
						ITEMS Hub Subnet	
ITEMS Server	164	217	25	50	unlabeled	10 Base T	1	
ITEMS BRT # 1	164	217	25	51	unlabeled	10 Base T	2	
ITEMS BRT # 2	164	217	25	52	unlabeled	10 Base T	3	
						Janus NET	
	I.P. Address			*Cable #*	*Type*	*Hub Port #*	
PASS-Pri. (Janus Net Port)	164	218	35	60	#13	10 Base T	1	
Janus Gnd. Force	164	218	35	68	#14	10 Base T	2	
Janus Server	164	218	35	67	#15	10 Base T	3	
PASS-Sec.(Janus Net Port)	164	218	35	66	#16	10 Base T	4	
Spare						5	
Spare						6	
Spare						7	
Spare						8	
Spare						9	
Spare						10	
Spare						11	
Spare						12	
Spare						13	
Spare						14	
Spare						15	
Fiber to 10 Base T Twister (Note: Link to Wolcott Hall)	-	-	-	-	-	10 Base T	16	

Table 3. Network Address Allocations for Frank Hall

3.3 Terrain Database and Scenario Development

Terrain database development was an extensive effort that involved a flight terrain database from Fort Campbell, KY to Jackson, MS, and then on to the JRTC Shugart/Gordon complex at Fort Polk, LA. In addition to the flight database a separate JRTC database was supposed to have been provided and developed as a GFE product for exercise monitoring and for use of the ground force. This product was never delivered or used for the exercise.

The initial scenario concept was developed by the 160th SOAR. The final operations orders and plans were developed jointly by the 160th SOAR, the 75th Rangers, and the 19th Special Operations Squadron (SOS) as part of the planning requirements for the exercise. The scenario depicted a joint special operations force conducting a helicopter combat assault in support of a light infantry company raid and extraction. The force package provided to mission planners included an AC-130U gunship and MC-130 tanker in addition to the rotary-wing assault force. These assets provided direct support to the 75th Ranger Regiment ground element. All forces involved in the mission were under the operational command and control of a joint staff. The AMC and GMC participated and controlled the exercise from a live MH-60 flying in the vicinity of the 160th SOAR Training Facility.

4. Conduct of the Exercise

4.1 Troop Training

In order to get the maximum benefit from the exercise two training periods were planned. The first training period for the Rangers to use Janus was conducted during the week of August 10-14 which was the rehearsal. The second period of training was built into the exercise period of September 28 to October 9. During this twelve-day exercise period four days were designated for training.

Additionally, at the request of the Commander 2nd Battalion 160th SOAR a mini-exercise was conducted September 9-10 to familiarize his personnel on the capabilities of the systems being used during the exercise. The mini-exercise was very effective and provided the Battalion Commander with the opportunity to fully use the exercise as a complete mission rehearsal tool. The unit received the actual benefits of mission planning, terrain familiarization, and practice on the execution of established unit procedures.

4.2 Exercise

The actual training exercise window was four days. This four-day period included two days to execute the exercise with two different Ranger and Aviation companies and one day for planning and implementing scenario modifications if required. The two trial runs for the exercise began on October 6 and ended on October 9, 1998.

The first exercise session started as scheduled on the evening of October 6 and ended on October 7. The technical and tactical objectives were met. At the conclusion of the first exercise a series of After Action Reviews (AARs) were conducted to discuss tactical and

technical issues. Upon completion of the AARs the units revised the tactical plan and the technical procedures were modified in preparation for the second exercise.

The second exercise session started as scheduled on the evening of October 8 and ended on October 9. The final schedule of events that took place from September 28 through October 9 is attached at Appendix C.

5. Observations and Lessons Learned

- **Observation #1**

The schedule of training activities at the 160th SOAR facility had an adverse impact on the integration and testing of the STOW-A exercise.

- **Discussion #1**

As projects are developed the customer's dates for the final delivery or execution are specified in the contract. The integration effort and milestones are developed by the engineering staff to support the final delivery. Technical Interchange Meetings could have preceded sub-system evaluation events and would have resulted in a more efficient integration process. The sub-system evaluations should have been planned around technical milestones and not schedule milestones established without engineering input. By proceeding with technical milestones the final delivery milestones are met while providing a less stressful integration effort and time saver.

- **Lesson Learned #1**

All efforts need to be planned with both technical and schedule considerations.

- **Observation #2**

Time allocated for access to manned simulators at the 160th SOAR facility was not adequate.

- **Discussion #2**

All customer briefings and presentations stressed the importance of the integration effort and indicated that this effort was the number one priority of the unit. This ties to the first observation that had all efforts driven by the schedule and not technical requirements. As a result, some integration efforts took more time than was necessary.

- **Lesson Learned #2**

Priorities, allocation of resources, technical considerations and schedule should all be considered when developing the plan. Engineering issues need to be addressed, considered, and scheduled in the planning phase of the effort.

- **Observation #3**

During exercise planning there was apprehension and concern from the exercise unit about the technical capability to support last minute requirements and changes to the exercise scenario.

- **Discussion #3**

ITEMS was the SAF selected to support the exercise. This commercially available product provides an effective representation of the air component, however, it requires a labor-intensive effort to prepare scripts. The initial scripts were prepared to support the initial operations order that was developed to support the exercise. As the subordinate units developed their plans from the original operations order a concern prevailed that the technical requirements for script development might drive the tactical plan. In order to keep trust in the technical capabilities of the systems, a decision was made that if an event could not be supported technically that a tactical reason or constraint would be placed on the unit rather that using a technical excuse.

- **Lesson Learned #3**

The 160th SOAR should consider other products to support future SAF requirements. STRICOM should assist in providing accurate information of other products to the 160th SOAR. Other SAF products include ITEMS, ModSAF 5.0, which will have an enhanced aviation capability, the Advanced Tactical Combat Model and OneSAF.

- **Observation #4**

Two networks were developed for Janus.

- **Discussion #4**

In order to keep network traffic within a manageable and to control the entity count a separate network was established for the Janus platforms. These machines operated on their own network and were connected to the DIS network by the PASS workstation. This was an engineering decision that was made as a result of the IPT process at the June SSE.

- **Lesson Learned #4**

This was an effective decision that provided benefits during the course of the exercise. From a positive note, this course of action provided the facility with a two-network capability, which will allow for additional assets to be used on the network and provide for growth in future experiments.

- **Observation #5**

Spares and adequate hardware must be present to provide adequate support to ensure exercise success.

- **Discussion #5**

As the 160th SOAR expands it's capabilities and grows in an effort to conduct future exercises it must ensure adequate hardware is available. Currently, the 160th has a limited capability and some of their equipment is non-operational and obsolete. The STOW program, Lockheed Martin and other agencies provided several platforms to support the exercise as well as spare equipment for backup in case of hardware failures. A complete list of hardware provided is attached at Appendix D.

- **Lesson Learned #5**

STRICOM and Lockheed Martin should assist the 160th SOAR in recommending items to be procured to support future exercises.

- **Observation #6**

An effective configuration management program is essential for the success of future training exercises.

- **Discussion #6**

The 160th SOAR exercise was conducted at the end of a massive development effort to upgrade the facility. This upgrade was performed by multiple agencies and at times the exercise integration efforts were hampered by not having the latest software on the systems. This issue was identified in August and a process was established to improve the configuration management process.

- **Lesson Learned #6**

The 160th SOAR needs to enforce and keep the effective process in place that it developed in August.

- **Observation #7**

ASTi cost and integration effort was more than anticipated.

- **Discussion #7**

The integration of the ASTi radio assets and the live to simulation communication bridge was a key element in the success of the exercise. However, the process of determining the initial requirement and a growth in the communication requirements created additional hardware costs and labor to effectively integrate the systems. The labor effort involved was more than twice the original estimate.

- **Lesson Learned #7**

Better requirement analysis and definition of scope is essential at the start of the engineering effort.

- **Observation #8**

Coordination with the AC-130U program at Hurlburt Field was more difficult than anticipated and impacted the total integration effort.

- **Discussion #8**

Support and coordination with the AC-130U program from the military side was initially non-existent at the start of the effort. The Lockheed Martin engineering team performed all initial coordination up through the Mini-exercise. This had an impact on the effectiveness of the SSEs and created scheduling issues as well as delayed engineering decisions and evaluations. Much of this can be attributed to the fact that the AC-130 program was in the process of final system acceptance and the Hurlburt staff was over committed. This issue was resolved at the August SSE and the 160th SOAR (A) became involved in establishing coordination through the military channels. This coordination resulted in increased support from the AC-130 program and two effective liaison officers being provided to support the exercise.

- **Lesson Learned #8**

More effective coordination from the 160th SOAR (A) and the 19th SOS from the initial start of the program would have resulted in a more efficient integration period prior to the start of the exercise.

- **Observation #9**

The Distributed Interactive Simulation Interface Unit (DIU) only has the capability to pass thirty-one closest entities into the visual scene.

- **Discussion #9**

During the development of the DIU, which is the interface between the host and the DIS network, it was documented that the capability existed to display the forty closest entities to the simulator. However, after the development process started it was discovered that the host reserves nine slots for special effects such as tanker drogue and sling loads. This capability presented several anomalies during the exercise when the visual scene did not depict the current situation based upon the actions of the simulator. This was especially noted at the times when troops were deployed from the aircraft.

-Lesson Learned #9

This is a hardware limitation this should be considered during scenario development and mission planning.

6.   Conclusion

The exercise was a tremendous success. The 160th SOAR has a staff that has been trained to plan and execute training exercises in a DIS environment. The facility also has in its possession ModSAF 4.0, Simulyzer, an established network plan, and associated hardware that provides communications in both a live and virtual environment. The primary goals of the exercise were to:

1) Integrate on-site assets and configure them in order to conduct a DIS exercise using manned simulators at Fort Campbell and Hurlburt Field.

2) Increase the battle staff synchronization of both the AMC and GFC for training or mission rehearsal at he the 160th SOAR facility.

3) To establish training system architecture that will provide the 160th SOAR with a simulation capability to refine and validate tactics for multi-aircraft all-weather operations.

At the completion of the exercise the Commander, 160th SOAR, and the Chief of the National Simulation Center made many favorable comments. The Commander stated "we have covered new ground with the Regiment and the results were greater than we expected. This was a total team effort with the 160th SOAR, the 75th Rangers and contractor personnel." The Chief of the National Simulation Center stated "this was the best first effort of any STOW-A exercise I have been associate with".

Discussions at the conclusion indicated that a follow-on effort would likely be scheduled in the late spring or early summer 1999. In follow-on exercises, historical situations will be programmed into the scenario and "played out", requiring the trainees to interact by making tactical decisions and choosing a variety of courses of action.

7.   Points of Contact

ADST II 160th SOAR Team

E.G. Fish	Project Director	407-306-4456
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Mike Blocker	Systems Engineer	407-306-4225
Emory Hicks	JANUS Engineer	407-306-4613
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Bruce Miller	AVTB Battlemaster	334-598-3066
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STRICOM

| Tom Lasch | Project Director | 407-384-3679 |
| Alesya Paschal | Project Engineer | 407-384-3867 |

Customer Points of Contact

CW4 Mike Durant	160th SOAR Project Officer	502-798-1901
CPT Moser	National Simulation Center	913-684-8179
CPT Greer	75th Ranger Regiment	706-545-3726

Acronym List

AAR	After Action Review
ADST	Advanced Distributed Simulation Technology
ALLTV	All Light Level Television
AMC	Air Mission Commander
BLUFOR	Blue Forces
BMC	Battle Management Center
CDRL	Contract Data Requirements List
CGF	Computer Generated Forces
CM	Configuration Management
CMS	Combat Mission Simulator
DBGS	Database Generation System
DBMS	Database Management System
DIGMAP	Digital Map
DIU	Distributed Interactive Simulation Interface Unit
DIS	Distributed Interactive Simulation
DO	Delivery Order
DWN	Dismounted Warrior Network
ENEWS	Effectiveness of Naval Electronic Warfare System
FLIR	Forward Looking Infrared Radar
GFC	Ground Force Commander
GFE	Government Furnished Equipment
GUI	Graphical User Interface
IAS	Integrated Avionics System
IPT	Integrated Product Team
ITEMS	Interactive Tactical Environment Management System
JRTC	Joint Readiness Training Center
LAN	Local Area Network

LMC	Lockheed Martin Corporation
MMR	Multi Mode Radar
ModSAF	Modular Semi-Automated Forces
NGV	Night Vision Goggles
OPFOR	Opposing Forces
OPORD	Operations Order
OS	Operating System
PASS	PDU Adapter Software System
PDU	Protocol Data Unit
POC	Point of Contact
PVD	Plan View Display
RIU	Radio Interface Unit
RRD	Ranger Reconnaissance Detachment
SAF	Semi-Automated Forces
SOAR	Special Operation Aviation Regiment
SOS	Special Operations Squadron
SOW	Statement of Work
SSE	Sub-system Evaluation
STOW-A	Synthetic Theater of War-Architecture
STRICOM	(US Army) Simulation Training and Instrumentation Command
TRAC	TRADOC Analysis Center
UDP	User Data Protocol

Appendix A-Additional Drawings
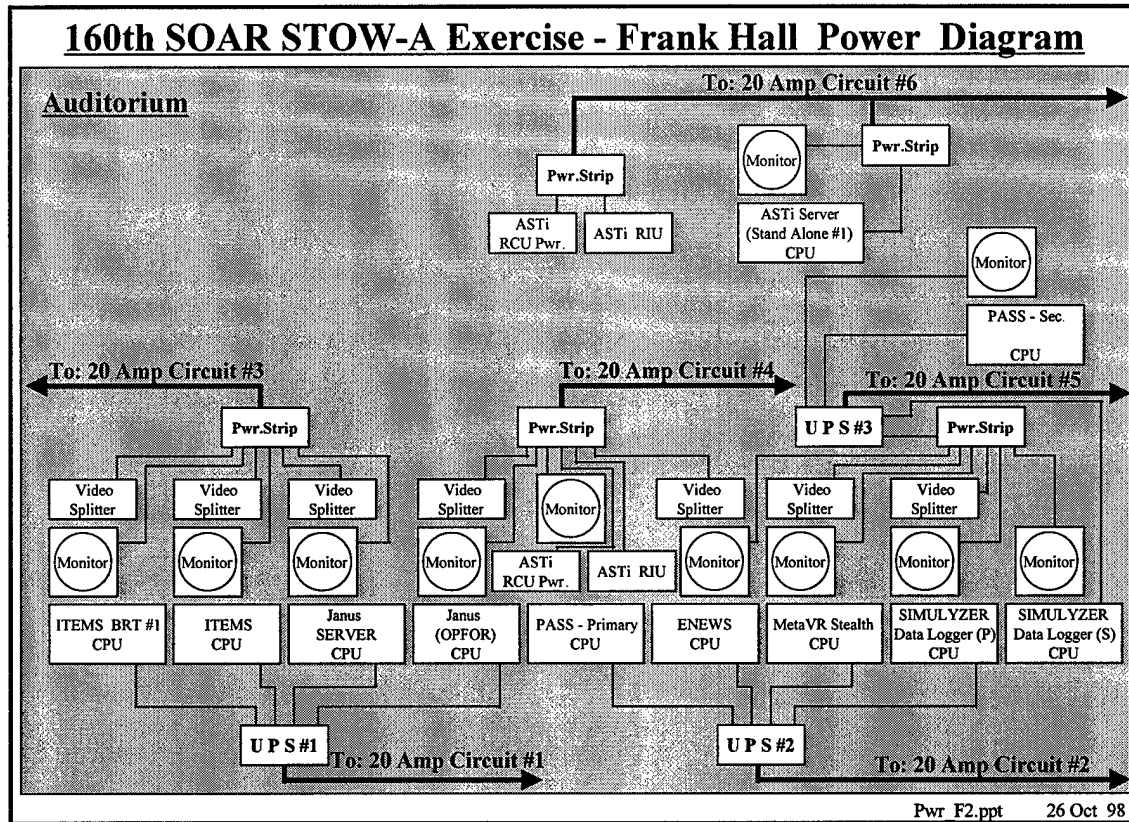
Figure A-1 Frank Hall Power Diagram

160th SOAR STOW-A Exercise - DIS to Live Radio Interface
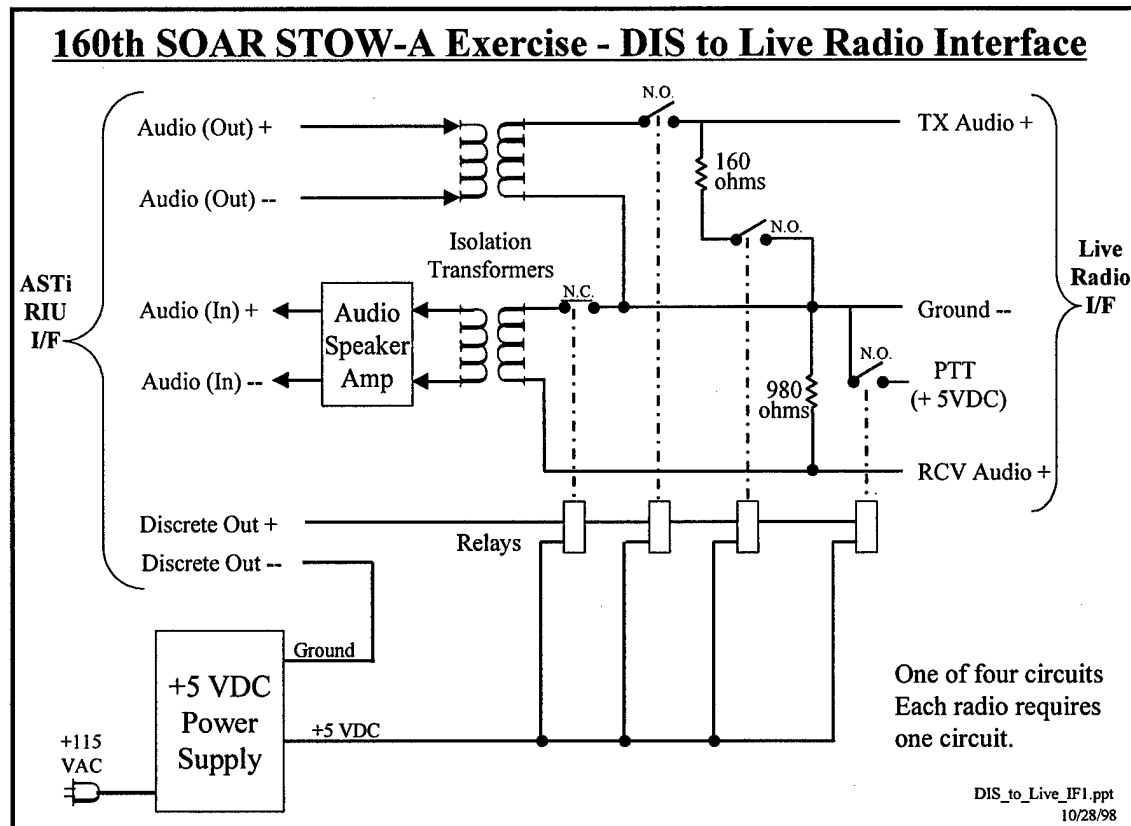
Figure A-2 DIS to Live Radio Interface

Radio Control Unit

Approximate Dimensions
Height - 7.00 inches
Width - 3.625 inches

Radio Switches & LEDs
- 8 Pushbutton Radio Switches
  2 VHF, UHF,HF,SATCOM,PLS
  Instructor and User Networks
- 42 LEDs

8 Character LED Display
- 5 X 7 LED Characters
- 6 Characters + Decimal Point
  + Hertz Range (K,M)

Telephone Keypad
- 18 Pushbutton Switches
  - 11 Numbers/Characters
  - 7 Function Keys
    - Frequency Input Mode
    - Clear Present Frequency
    - Recall Previous Frequency
    - Enter Key (Stores New Freq.)
    - Hertz Range Toggle (KHz, MHz)
    - Monitor / Transmit Modes

RADIO CONTROL UNIT

• A ○ S	• A ○ S	• A ○ S	• A ○ S
• R • T	• R • T	• R • T	• R • T
□	□	□	□
VHF1	VHF2	UHF	HF

[+] VOL [−]

• A ○ S	• A ○ S	• A ○ S	• A ○ S
• R • T	• R • T	• R • T	• R • T
□	□	□	□
INST	USER	PLS	SATC

POWER •

[RESET]

A ACTIVITY S SECURE R RECEIVE T TRANSMIT
────── RADIO CHANNELS ──────

| **LED DISPLAY** |
| **8 CHARACTERS** |

FREQUENCY •

PROTECTED

1	2	3	CLR
4	5	6	RCL
7	8	9	
•	0	±HZ	ENT
RCV SEL	•	• TX SEL	

• [SEC]
• [USR2]
• [USR3]
• [USR4]
• [USR5]
• FAULT

Ext. Speaker Connection

(Headset & Mic.)

Push-to-talk Control

Headset/PTT Connector

EBC Existing Commercial Part
Part # RCU1 (Model FC-1)

Local Headset Volume Control
- 2 Pushbutton Switches

Power On Indicator LED

Radio Reset Switch
Note: Panel and Switch
Colors, Type, Spacing, etc.
are similar to existing
Ft. Knox CAU design

Protected Freq. Indicator LED
- For Display Only Freqs.

Secure Mode Key & Indicator LED

Spare - User Defined Keys
- 4 Pushbutton Switches
  for any User S/W Function

Monitor and Transmit Mode
Switches and Indicator LEDs

Comm Fault Indicator LED

Serial I/F and Power Connector

File: HHT_1F6.PPT Page 1 10/28/98

Figure A-3 Radio Control Unit (RCU) Hand Held Terminal

Appendix B-DIS Enumeration Table

DIS ENUMERATION TABLE/TEST MATRIX

Rev 96-1 Listing IST-CR-96-06 of Version 2.0.4 and IST-CR-98-07 with modification)

7 October 1998

Model/Entity Type	Entity Kind	Domain	Country	Category	Subcat	Specific	ESIG Entity Map (Model #)
AC-130U	1	2	225	2	9	3	3
General Mobile Radar	9	1	225	2	2	0	0
MH-47E	1	2	225	25	2	1	21
MH-60G	1	2	225	25	1	2	
MH-60E	1	2	225	25	1	1	23
MH-60L	1	2	225	25	1	4	23
MH-60K	1	2	225	25	1	3	23
TS-MH6	1	2	225	25	1	0	
SA-6 Site	1	1	222	4	19	1	
SA-2 Site	1	1	222	28	1	3	
Rifleman (Red)	3	1	222	1	206	1	
Wounded Soldier	3	1	225	1	1	1	
Chevy Truck (Red)	1	1	222	6	7	0	
LZ	1	1	225	14	0	0	
60mm Mortar Team	1	1	225	10	2	0	
SA-7 TM	3	1	222	1	1	233	
ZSU-23	1	1	222	4	18	0	38
Ranger M203	3	1	225	1	73	0	
C.O.	3	1	225	1	11	0	
X.O.	3	1	225	1	17	3	
CCP	3	1	225	1	17	4	
SQD LD	3	1	225	1	17	1	
M240 TM	3	1	225	1	52	2	
SN/M24	3	1	225	1	24	2	
SN/M82	3	1	225	1	23	2	
RAAWS	3	1	225	1	81	3	
Plt Ld	3	1	225	1	17	5	
Plt Sgt	3	1	225	1	17	2	
Rgr Tm	3	1	225	1	116	10	
P.C. (Precious Cargo)	1	1	225	14	1	0	
LT MG	3	1	222	1	216	2	
SNIPER (Red)	3	1	222	1	208	1	

Vehicle placement: Vehicles will be placed in database at Keesler N30 24 40" W88 55 25" HDG 215 ON RUNWAY.

Orientation 222 degrees

Vehicles on road in line

Aircraft located above roads 100 ft AGL, line

Vehicle Generation: The following systems are expected to generate the listed entities with the DIS enumeration values listed.

Blue Order of Battle: The following manned simulators and simulations will generate DIS entities in the initial scenario including the following munitions.

Model/Entity Type								ITEMS	JANUS	AC-130	MH-60
C-141A	1	2	225	4	3	1	0				
AC-130U	1	2	225	2	9	3		+	+	X	+*
MC-130	1	2	225	4	1	8	0				
25mm API	2	2	225	2	3	7		+	+	X	
25mm HE	2	2	225	2	3	2		+	+	X	
40mm HEDPV	2	2	225	2	3	0		+	+	X	
105mm AP	2	2	225	2	10	3		+	+	X	
General Mobile Radar	9	1	225	2	2	0	0				
SA-6 Site	1	1	222	4	19	1		X	NA	No Visual	SA9/Cloud*
SA-2 Site	1	1	222	28	1	3	0	X	NA	No Visual	Missile*
MH47E	1	2	225	25	2	1		X	+	RWA	+*
7.62 mm	2	8	225	2	4	0		X			
MH-60G	1	2	225	25	1	2		X	+	RWA	+*
7.62mm	2	8	225	2	4	0		X			
MH-60L	1	2	225	25	1	4		X	+	RWA	+*
7.62 mm	2	8	225	2	4	0		X			
MH-60K	1	2	225	25	1	3		X	+	RWA	+*
7.62 mm	2	8	225	2	4	0		X			
Rifleman (Red)	3	1	222	1	206	1		+	X	+	+Soldier*
5.45 mm Rifle	2	8	222	2	1	2			X		
Wounded Soldier	3	1	225	1	1	1		+	X	+	+*
Chevy Truck (Red)	1	1	222	6	7	0		+	X	+	+*
12.7mm MG	2	1	222	2	1	0			X		
5.45 mm Rifle	2	8	222	2	1	2			X		
LZ	1	1	225	14	0	0		NA	X	NA	NA*
60mm Mortar Tm	1	1	225	10	2	0		+	X		+*
M4, 5.45 mm Rifle	2	8	225	2	1	1			X		
9mm Pistol	2	8	225	2	3	3			X		
60mm HE	2	9	225	2	5	1			X		+*
60mm Smoke	2	9	225	2	5	3			X		+*
SA-7 TM	3	1	222	1	1	233			X		
SA-7 Missle	2	1	222	1	19	0			X		
5.45 mm Rifle	2	8	222	2	1	2			X		
ZSU-23/4	1	1	222	4	18	0		X	BMP	+	+*
23mm HE	2	9	222	2	3	0		X			
5.45 mm Rifle	2	8	222	2	1	2		X			
Ranger M203	3	1	225	1	73	0		+	X		+*

Model/Entity Type							ITEMS	JANUS	AC-130	MH-60
M4, 5.56mm Rifle	2	8	225	2	1	1		+	X		
40mm HE	2	9	225	2	5	2			X		
40mm WP	2	9	225	2	5	18			X		
C.O.	3	1	225	1	11	0		+	X		+Team-4*
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
9mm Pistol	2	8	225	2	3	3			X		
X.O.	3	1	225	1	17	3		+	X		+Team-4*
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
HE Grenade	2	9	225	2	44	0			X		
CCP	3	1	225	1	17	4		+	X		NoReq*
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
9mm Pistol	2	8	225	2	3	3			X		
HE Grenade	2	9	225	2	44	0			X		
PLT SGT	3	1	225	1	17	2	0				
SQD LD	3	1	225	1	17	1		+	X		+Soldier*
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
M576 Shotgun/Buckshot	2	9	225	2	4	10	0				
HE Grenade	2	9	225	2	44	0			X		
M240 TM	3	1	225	1	52	2		+	X		+Team-4*
M240 MG	2	8	225	2	2	4			X		
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
9mm Pistol	2	8	225	2	3	3			X		
SN/M24	3	1	225	1	24	2		+	X		+Team-4*
7.62mm/SN	2	8	225	2	2	5			X		
9mm Pistol	2	8	225	2	3	3			X		
SN/M82	3	1	225	1	23	2			X		Team-4
.50 cal SN	2	8	225	2	5	1			X		
9mm Pistol	2	8	225	2	3	3			X		
RAAWS	3	1	225	1	81	3			X		+Team-4/Truck*
RAAWS-AT	2	2	225	2	8	0			X		
RAAWS-AP	2	2	225	2	8	1			X		
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
9mm Pistol	2	8	225	2	3	3			X		
Plt Ld	3	1	225	1	17	5			X		Team-4*
M4, 5.56mm Rifle	2	8	225	2	1	1		+	X		
HE Grenade	2	9	225	2	44	0			X		
Rgr Tm	3	1	225	1	116	10	0	+	X		+Team –4*
C4	2	9	225	2	43	0	0				
5.56SFSAW	2	2	225	2	1	5			X		
M4, 5.56mm Rifle	2	8	225	2	1	1			X		
SF/AT4	2	2	225	1	8	0			X		
P.C. (Precious Cargo	1	1	225	14	1	0			X		
LT MG	3	1	222	1	216	2			X		Soldier
7.62mm MG	2	8	222	2	2	3			X		
Sniper Red	3	1	222	1	208	1			X		Soldier
7.62mm SN	2	8	222	2	2	4			X		

Appendix C-Exercise Schedule

28 Sep – 9 Nov 98 160th SOAR(A) STOW-A Exercise Schedule/Personnel Roster
Version 15 As Of 7 October, 1998

ID	EVENT	DATE	TIME (S)	TIME (Z)	Personnel * = Briefer	Location
1	JANUS/PASS/CATI Travel Day	28 Sep			SOF SIM CTR/ CATI	FBG/Daleville-HOP
1B	MH-60K CMS/MC-130 MRD Secure Comm/DIS Check	28 Sep	1430-1900	1930-0000	Blocker/Levarn/ (B) CMSI	Wolcott Hall/Frank Hall/Hurlburt
2	75th RGR/LMIS/19th SOS Travel Day	29 Sep			75th RGR/LMIS/ 19th SOS	Orlando/Hurlburt Field/Benning/ Lewis-HOP
3	System power on and operational NLT (JANUS/PASS/ ITEMS/ITEMS-BRT/Symulizer/ASTi/ 60K CMS/ TOPSCENE/ENEWS/MROC)	29 Sep	NLT 1000	NLT 1500	SOFSIM CTR/ CATI/LMIS/ AVTB/Gehring/ Levarn/Dean/A, B, & F CMSI	Wolcott/Frank Hall
4	Verify Network Connection/T1 Line	29 Sep	1000-1030	1500-1530	"	Wolcott/Frank Hall/Hurlburt
4A	MH-60K CMS/AC130U Comm Verification	29 Sep	1400-1500	1900-2000	Blocker/Levarn	Wolcott/Frank Hall/Hurlburt
5	Final development	29 Sep	1030-1600	1530-2100	Tech Cell	Wolcott/Frank Hall
6	Secure Frank Hall/Set up Tidwell Hall	NLT 29 Sep	1700	2200	SFC Best/RS4	Frank Hall/Tidwell Hall
7	Issue RRD Frago to 2/160	30 Sep	1300-1330	1800-1830	*TF 1-160/CPT Greer/RRD Planner/Durant	Tidwell Hall Yellow Ribbon Room
7A	Stand up the JSOTF/Purple Cell	30 Sep	0900	1400	OIC/CPT Greer/ CW5 Demilia/ CW4 Durant/ CW3 Johnson/ AF LNO	Wolcott Hall Rm 101
8	RRD Planning w/ 2/160	30 Sep-2 Oct	As req'd	As req'd	RRD Planner/ TF Purple/2-160	Tidwell Hall Yellow Ribbon Room
9	Mission/Schedule Overview to all white cell participants	30 Sep	0830-0900	1330-1400	White Cell *Durant *Levarn *Demilia	FrankHall
10	Event 11-16 Overview	30 Sep	0900-0915	1400-1415	Levarn/Gehring/ Durant/Dean/ Carey/McGee/ A & B CMSI	Frank Hall
11	Database correlation verification (JANUS/PASS/ITEMS/MH-60K CMS/TOPSCENE/ENEWS)	30 Sep	0930-1200	1430-1700	" " Gehring	Wolcott/Frank Hall

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12	Establish AC-130 ATD TB network connection/T1	30 Sep	(1030)	(1530)	LMIS/19th LNO	Frank Hall
13	Database correlation with JANUS/PASS/AC-130	30 Sep	1030-1100	1530-1600	Gehring/LMIS/ SOFSIM CTR/19th LNO	"
14	DIS Enumeration Confirmation	30 Sep	1100-1130	1600-1630	"	"
15	Fire/destroy Test	30 Sep	1130-1200	1630-1700	"	"
16	Determine Systems Acceptability	30 Sep	1200	1700	Durant/Levarn	Frank Hall
17	LUNCH	30 Sep	1200-1245	1700-1745	All	As req'd
18	Event 19-24 Overview	30 Sep	1245-1300	1745-1800	Levarn/Gehring/ *Durant/Dean/ Carey/McGee/ A, B, C, G, & F CMSI/19th LNO/Blocker	Frank Hall
19	Verify AC-130 ATD TB network connection	30 Sep	(1300)	(1800)	LMIS/19th SOS	Frank Hall
20	COMM-EX Brief including overview of event #31	30 Sep	1300-1315	1800-1815	* Levarn/ Gehring/Durant/ Dean/Carey/ McGee/ A, B, C, & F CMSI/19th LNO/Blocker	Frank Hall
21	COMM-EX (CMS/ASTi role players/AC-130)	30 Sep	1315-1345	1815-1845	" "	Wolcott/Frank Hall
22	COMM-EX Debrief	30 Sep	1400-1415	1900-1915	" "	Frank Hall
23	Cancelled Rangers will deploy via space A to Scott AFB	30 Sep	TBD	TBD	2/75th:e	Ft. Lewis-HOP
24	Establish a plan for fixes/development time	30 Sep	1500-1600	2000-2100	All	Frank Hall
24A	MH-60K and MH-47E CMS Display Balance	30 Sep	1500-1900	2000-0000	McGee/ A & E CMSI /Raytheon/ Preston	Wolcott Hall
25	End of Day Status/Progress Brief	30 Sep	1600-1630	2100-2130	Durant/Levarn	Frank Hall
26	CM Freeze w/ noted changes	30 Sep	1630	2130	Lasch	Frank Hall
26A	C2 Aircraft Lands LZ Serpent	1 Oct	0730	1230	C2 Crew	LZ Serpent
27	Back-brief RRD Mission	1 Oct	0730-0755	1230-1255	*TF Purple/CPT Greer/RRD Planner/Durant/ Levarn/47E OC	Tidwell Hall Yellow Ribbon Room
28	JANUS training block I	1 Oct	0800-1130	1300-1630	SOFSIM CTR/ 75th RGR	Wolcott Hall
29	Event 30-33 Overview	1 Oct	0800-0815	1300-1315	*Levarn/ Gehring/Dean/ Carey/McGee/ A, B, C/G, F CMSI/19th LNO/C2 Rep	Frank Hall
30	Re-Establish AC-130 ATD TB network connection	1 Oct	0815	1315	LMIS/19th SOS	Frank Hall

31	Communication check-in w/ CMS ASTi role players AC-130/MH-60K CMS/C2 Console/C2 Aircraft	1 Oct	0815-0845	1315-1345	Levarn/Gehring/ Durant/Dean/ Carey/McGee/ A, B, C/G, F CMSI/19th LNO/C2 Rep	Frank Hall
31B	White Cell Daily Brief	1 Oct	0900-0930	1400-1430	All White Cell	Frank Hall
32	Run Scenario w/Data Collection and Tactical Communications (SSE 3/Rehearsal Mission Farp to TGT)	1 Oct	0930-1130	1430-1630	All White Cell	Frank Hall
33	Debrief Scenario Run	1 Oct	1130-1200	1630-1700	*Levarn/ Gehring/Durant/ Dean/Carey/ McGee/ A, B, C/G, F CMSI/19th LNO/C2 Rep	Frank Hall
34	Lunch	1 Oct	1200-1300	1700-1800	All	As Req'd
35	JANUS Training Block II	1 Oct	1300-1630	1800-2130	SOFSIM CTR/ 75th RGR	Wolcott Hall
36	Event 37-39 Overview	1 Oct	1300-1315	1800-1815	Levarn/Gehring/ *Durant/Dean/ Carey/McGee/ A, B, C, G, F CMSI/19th LNO	Frank Hall
37	Fix Deficiencies/Retest as Req'd	1 Oct	1315-1630	1815-2130	As Req'd	As Req'd
37A	MH-47E Display Balance/Color Tuning/DB Fixes	1 Oct	1315-1630	1815-2130	McGee, Preston, Moss, CMSI E	Wolcott Hall
37B	JSOTF Daily Update Brief	1 Oct	1600-1615	2100-2115	TF Purple/1-160	Tidwell Hall
38	End of Day Status/Progress Brief	1 Oct	1615-1630	2115-2130	Durant/Levarn	Frank Hall
39	Select Personnel Return to Home Station	1 Oct	1630	2130	As Req'd	As Req'd
39A	Operations Order Mission Brief MH-47E RRD	2 Oct	0700-MC	1200-MC	*47E Crew/OC/ RRD Planner/ TF Purple/E, F, G, & H CMSI/ Durant/ Levarn	Tidwell Hall
39B	Somalia Memorial	2 Oct	0730	1230		RGT HQ Memorial
39C	Weapon Presentation	2 Oct	0800	1300	All	Wolcott Hall
40	JANUS Training Block III	2 Oct	0800-1130	1300-1630	SOFSIM CTR/ 75th RGR	Wolcott Hall
41	Fix Deficiencies/Retest as Req'd	2 Oct	0800-1130	1300-1630	As Req'd	As Req'd
41B	White Cell Daily Brief	2 Oct	0900-0930	1400-1430	All White Cell	Frank Hall
42	Rock Drill	2 Oct	0900-0945	1400-1445	2-160/1-160/ CMSI E & F	Tidwell Hall
42A	Tactical Update Brief	2 Oct	0945-1000	1445-1500	" "	Tidwell Hall
42B	Communications Checks MH-47E CMS/C2 Console	2 Oct	1000-1030	1500-1530	Levarn/E, G & H CMSI/C2 Rep	Wolcott Hall/LZ Serpent
43	Take-off MH-47E RRD Insertion (H Hour 1330S)	2 Oct	1130	1630	47E OC/E & F CMSI/ 2-160 Crew/TF Purple	47E CMS

44	Lunch	2 Oct	1130-1300	1630-1800	All	As Req'd
44A	MAJ(P) Kunkel Promotion	2 Oct	1200-1230	1700-1730	As Req'd	SIMO
45	CANCELLED STOW Overview/OC Brief	2 Oct	1300-1400	1800-1900	*TF Purple/ White Cell/ A, B, C, D, G, H CMSI	Frank Hall
46	JANUS Training Block IV	2 Oct	1300-1630	1800-2130	SOFSIM CTR/ 75th RGR	Wolcott Hall
47	Fix Deficiencies/Retest as Req'd	2 Oct	1300-1600	1800-2100	As Req'd	As Req'd
48	MH-47E RRD H-Hour	2 Oct	1330	1830	47E OC/E & F CMSI/ 2-160 Crew/TF Purple	"
48A	CANCELLED Move TOPSCENE 4000	2 Oct	1330-1400	1830-1900	Carey	Tidwell
49	Issue Frago to D/1/160 & 2/75th RGR **(Alpha Mission)**	2 Oct	1400-1500	1900-2000	TF Purple/OCs/ 1-160/Levarn	Tidwell Hall Yellow Ribbon Room
50	MH-47E RRD land Keesler	2 Oct	(1526)	(2026)	47E OC/E & F CMSI/ 2-160 Crew/TF Purple	Wolcott Hall
51	AAR MH-47E RRD Mission	2 Oct	1530-1600	2030-2100	*47E OC/CMSI/ 2-160 Crew/TF Purple/Dean Levarn/Preston/ McGee	Frank Hall
51B	JSOTF Daily Update Brief	2 Oct	1600-1615	2100-2115	TF Purple/1-160	Tidwell Hall
52	End of Day Status/Progress Brief	2 Oct	1615-1630	2115-2130	Durant/Levarn	Frank Hall
53	1/160 & 75th Ranger Mission Planning **(Alpha Mission)**	3 Oct	(0800-1630)	(1300-2130)	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
53A	COA Back-brief to CDRs/TF Purple **(Alpha Mission)**	(3 Oct)	(0800-0900)	(1300-1400)	*1/160 & 75th RGR Planners/ TF Purple/OCs/ Levarn/Gehring/ A, C & G CMSI	Tidwell Hall Yellow Ribbon Room
54	JANUS Training Block V (optional)	3 Oct	0800-1130	1300-1630	SOFSIM CTR/ 75th RGR	Wolcott Hall
55	Fix Deficiencies/Retest as Req'd	3 Oct	0800-1130	1300-1630	As Req'd	As Req'd
55A	ITEMS scenario development	3 Oct	0800-1130	1300-1630	CATI/Gehring	Frank Hall
55B	2/75 FRAGO	3 Oct	0900-1000	1400-1500	Purple Cell/2-75/1-160 Staff	Tidwell Hall
56	Lunch	3 Oct	1130-1300	1630-1800	As Req'd	As Req'd
57	JANUS Training Block VI (optional)	3 Oct	1300-1630	1800-2130	SOFSIM CTR/ 75th RGR	Wolcott Hall
58	Fix Deficiencies/Retest as Req'd	3 Oct	1300-1600	1800-2100	As Req'd	As Req'd
59	ITEMS scenario development	3 Oct	1300-1600	1800-2100	CATI/Gehring	Frank Hall
59A	1/160 & 75th Ranger Mission Planning **(Alpha Mission)**	3 Oct	(1300-0400)	(1800-0900)	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
59B	JSOTF Daily Update Brief	3 Oct	1600-1615	2100-2115	TF Purple/1-160	Tidwell Hall
59C	Bn Operations Order	3 Oct	1700-1730	2200-2230	2/75	Tidwell Hall

60	75th Assumes Building Security	4 Oct	0600	1100	75th Ranger	Frank/Tidwell Halls
62	JANUS Training Block VII (optional)	4 Oct	0800-1130	1300-1630	SOFSIM CTR/ 75th RGR	Wolcott Hall
65	Lunch	4 Oct	1130-1300	1630-1800	As Req'd	As Req'd
65A	JSOTF Staff Show	4 Oct	1200	1700	JSOTF Staff	Wolcott Hall
65B	TF Brown Show	4 Oct	1300	1800	TF Brown	Tidwell Hall
61	1/160 & 75th Ranger Mission Planning **(Alpha Mission)**	4 Oct	1300-0200	1800-0700	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
66	2/75 Staff Update	4 Oct	1300-1500	1800-2000	2/75	Tidwell hall
67	JANUS Training Block VIII (optional)	4 Oct	1300-1630	1800-2130	SOFSIM CTR/ 75th RGR	Wolcott Hall
67A	ITEMS scenario development	4 Oct	1300-1630	1800-2130	CATI/Gehring	Frank Hall
68	Fix Deficiencies/Retest as Req'd	4 Oct	1300-1600	1800-2100	As Req'd	As Req'd
69	ITEMS scenario development	4 Oct	1300-2300	1800-0400	CATI/Gehring	Frank Hall
69A	Wargaming	4 Oct	1330-1430	1830-1930	TF Brown	Tidwell Hall
69B	JOC Update	4 Oct	1400-1430	1900-1930	JSOTF	Wolcott Hall
69C	White Cell Daily Brief	4 Oct	1500-1530	2000-2030	All White Cell	Frank Hall
70	LMIS Travel Day	4 Oct	As Req'd	As Req'd	LMIS	Orlando-HOP
70B	JSOTF Daily Update Brief	4 Oct	1600-1630	2100-2130	TF Purple/1-160/TF Red	Tidwell Hall
70C	TF Brown OPS Intel Update	4 Oct	1700-1800	2200-2300	TF Brown	Tidwell Hall
70D	Execution Checklist Scrub	4 Oct	1800-1830	2300-2330	TF Brown/TF Red/J3/J6	Tidwell Hall
70E	B/2/75 Oporder	4 Oct	2000-2100	0100-0200	JSOTF Staff/TF Brown/TF Red	Tidwell Hall
70F	B/2/75 Rock Drill	4 Oct	2200-2300	0300-0400	TF Brown/TF Red	Tidwell Hall
71	CANCELLED Tactical & Technical Update Brief to all White Cell	5 Oct	0800-0845	1300-1345	All White Cell *Durant	Frank Hall
71A	JSOTF Staff Show	5 Oct	1200	1700	JSOTF Staff	Wolcott Hall
72	ITEMS/JANUS/PASS scenario development	5 Oct	1300-As Req'd	1800-As Req'd	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
72A	COMM-EX Brief	5 Oct	1245-1300	1745-1800	*Levarn/C2 Crew/ 19th LNO/ JANUS rep/A, B, C, &G CMSI	Frank Hall
73	Verify AC-130 ATD TB network connection	5 Oct	1300	1800	LMIS/19th SOS	Frank Hall
73A	Final Exercise Preparation	5 Oct	1300-1600	1800-2100	All	Frank Hall
74	1/160 & 75th RGR Mission Planning **(Bravo Mission)**	5 Oct	1300-2300	1800-0400	TF Brown/TF Red	RGT HQ TS Conference Room
75	Database correlation verification (JANUS/PASS/ITEMS/MH-60K CMS)	5 Oct	1315-1345	1815-1845	Gehring/A & B CMSI	Wolcott/Frank Hall
76	Establish AC-130 ATD TB network connection	5 Oct	1330	1830	LMIS/19th LNO	Frank Hall
77	ITEMS scenario development	5 Oct	1345-1530	1845-2030	CATI/Gehring	Frank Hall

78	Database correlation with JANUS/PASS/AC-130	5 Oct	1345-1415	1845-1915	Gehring/ LMIS/SOFSIM CTR/19th LNO	Frank Hall
79	C2 Aircraft established on holding track	5 Oct	1400	1900	C2 Crew	C2 Track
79A	JOC Update	5 Oct	1400-1430	1900-1930	JSOTF	Wolcott Hall
80	COMM-EX w/ CMS/ASTi role players/AC-130/C2 Aircraft (Airborne and LZ Serpent)	5 Oct	1415-1500	1915-2000	Levarn/Gehring/ Durant/Dean/ A, B, C, & G CMSI/19th LNO/Blocker/ C2 Aircraft/ JANUS Rep	Wolcott/Frank Hall/C2 Track/LZ Serpent
80A	1/160 & 75th Ranger Mission Planning as required (Alpha Mission)	5 Oct	1500-0200	2000-0700	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
81	White Cell Daily Brief	5 Oct	1500-1530	2000-2030	All White Cell	Frank Hall
82	COMM-EX Debrief	5 Oct	1530-1545	2030-2045	" "	Frank Hall
83	Determine Systems Acceptability	5 Oct	1530	2030	Durant/Levarn	Frank Hall
84	DINNER	5 Oct	1530-1645	2030-2145	All	As req'd
85	JSOTF Daily Update Brief	5 Oct	1600-1630	2100-2130	TF Purple/ 1-160/TF Red	Tidwell Hall
86	MH-60K CMS Display Balance	5 Oct	1600-1900	2100-0000	McGee/A & B CMSI/Raytheon/ Preston	Wolcott Hall
87	Freeze Baseline	5 Oct	1630	2130	Lasch	Frank Hall
88	TF Brown OPS Intel Update	5 Oct	1700-1800	2200-2300	TF Brown	Tidwell Hall
89	Tactical Mission Brief (Alpha Mission)	5 Oct	2000-2200	0100-0300	*1/160 & 75th RGR Planners/ TF Purple/OCs/ Levarn/Gehring/ A, B, C, & G CMSI	Tidwell Hall Yellow Ribbon Room
90	TF Brown Rock Drill	5 Oct	2200-2300	0300-0400	*1/160 & 75th RGR Planners/ TF Purple/OCs/ Levarn/Gehring/ A, B, C, & G CMSI	Tidwell Hall Yellow Ribbon Room
91	ITEMS/JANUS/PASS scenario development (optional)	6 Oct	0800-As Req'd	1300-As Req'd	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
92	LUNCH	6 Oct	1130-1245	1630-1745	All	As req'd
93	COA Back-brief to CDRs/TF Purple (Bravo Mission)	(6 Oct)	(1300-1400)	(1800-1900)	*1/160 & 75th RGR Planners/ TF Purple/ Levarn/Gehring/ A,C & G CMSI	RGT HQ TS Conference Room
94	ITEMS/JANUS/PASS/CMS scenario development	6 Oct	1300-1600	1800-2100	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
95	White Cell Daily Brief	6 Oct	1500-1515	2000-2045	All White Cell	Frank Hall

96	CANCELLED Final Mission Data Provided to SAF (Alpha Mission)					
96B	CANCELLED Tactical Update Brief (Alpha Mission)					
97	COMM-EX Brief (Alpha Mission)	(6 Oct)	(1545-1600)	(2045-2100)	*Levarn/ Gehring/Durant/ Dean/Carey/ McGee/C, G, CMSI/19th LNO	Frank Hall
98	Power-on/Network Test	(6 Oct)	(1530-1545)	(2030-2045)	Tech Cell/ Gehring/Levarn/ Dean	Wolcott/Frank Hall
99	COMM-EX (Alpha Mission)	(6 Oct)	(1600-1615)	(2100-2115)	All Tactical Players/Levarn	Wolcott/Frank Hall
99B	CANCELLED JSOTF Daily Update Brief					
100	COMM-EX Debrief	6 Oct	1615-1630	2115-2130	" "	Frank Hall
101	Run FARP > Target (ITEMS) Scenario w/Data Collection and Communication Test (Alpha Mission) (Optional)	6 Oct	1600-1730	2100-2230	Gehring/Dean/ Levarn/Durant	Frank Hall
102	CANCELLED IFR Campbell > Keesler Mission including ATC at IOS (Alpha Mission)	6 Oct	1635-1955	2135-0055	1/160 flt lead crew/AMC/A, C, & G CMSI/ 19th LNO	Wolcott/Frank Hall
102*	Wargaming (Bravo Mission)	6 Oct	1730-1830	2230-2330	1/160 flt lead crew/AMC/19th LNO	Tidwell Hall
102 A	1/160 Show (Alpha Mission)	6 Oct	1800	2300	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
102 B	JSOTF/TF Brown Update Brief	6 Oct	1900	0000	TF Brown/ JSOTF Staff/ CMSI A, C, F, & G	
103	CANCELLED IFR Flight Debrief (Alpha Mission)	6 Oct	1955-2015	0055-0115	60K OC/ A CMSI/ Durant/ Levarn	60K Briefing Room
104	Establish AC-130 ATD TB network connection	6 Oct	1730	2230	LMIS/19th SOS	Wolcott/Frank Hall
105	ITEMS Final Scenario Development Test (Alpha Mission)	6 Oct	1730-1900	2230-2400	Gehring/CATI	Frank Hall
106	DINNER	6 Oct	As Available	As Available	All	As Req'd
107	C2 Crew Update Brief	6 Oct	1930	0030	C2 Crew/OC/ Durant/*Levarn	Frank Hall
108	Deleted					
109	Re-Establish AC-130 ATD TB network connection	6 Oct	2100	0200	LMIS/19th SOS	Wolcott/Frank Hall
110	C2 MH-60L Established in Holding	6 Oct	2115	0215	C2 Crew	TBD
111	Alpha Mission Keesler > Target > England w/Data Collection & C2 Aircraft Airborne (H-Hour = 0515Z)	6-7 Oct	2105-0130	0205-0630	All/1-160/A, C, F, & G CMSI	Wolcott/Frank Hall
112	C2 Aircraft Lands to drop off AMC/GFC	7 Oct	0130	0630	C2 Crew	LZ Serpent

113	Mission Debrief **(Alpha Mission)**	7 Oct	0230	0730	All/*1-160	Tidwell Hall
114	After Action Review **(Alpha Mission)**	7 Oct	(0300)	(0800)	All/*OCs	Frank Hall
115	End of Day Status/Progress Brief	7 Oct	(0330)	(0830)	Durant/Levarn	Frank Hall
116	Determine System Go/NoGo Exercise status	7 Oct	(0345)	(0845)	Durant/Levarn	Frank Hall
117	Bravo Element Occupies Tidwell Hall	7 Oct	0800	1300	Bravo Element	Tidwell Hall
118	1/160 & 75th Ranger Mission Planning **(BravoMission)**	7 Oct	(0800-2200)	(1300-0300)	1/160 & 75th RGR Planners	Tidwell Hall Yellow Ribbon Room
119	Event 120-125 Overview	7 Oct	1245-1300	1745-1800	Levarn/Gehring/ *Durant/Dean/ Carey/McGee/ 4xCMSI/19th LNO/Blocker	Frank Hall
120	Tactical Mission Rehearsal/Rock Drill **(Bravo Mission)** **CANCELLED**	(7 Oct)	(1300-1400)	(1800-1900)	1/160 & 75th RGR Planners/TF Purple/Durant/ Levarn/Gehring/ A, C, F, & G CMSI	Tidwell Hall Yellow Ribbon Room
121	Tactical & Technical Update Brief to White Cell	7 Oct	1500-1630	2000-2130	White Cell/*Durant	Frank Hall
122	ITEMS/JANUS scenario development **(BravoMission)**	7 Oct	1300-As Req'd	1800-As Req'd	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
123	Verify AC-130 ATD TB network connection (optional)	7 Oct	1300	1800	LMIS/19th SOS	Frank Hall
124	Final Exercise Preparation **(BravoMission)**	7 Oct	1300-1600	1800-2100	All	Frank Hall
125	End of Day Status/Progress Brief	7 Oct	1615-1630	2115-2130	Durant/Levarn	Frank Hall
126	JSOTF Daily Update Brief	7 Oct	1700	2200	TF Purple/1-160	Tidwill Hall
127	Tactical Operations Order **(Bravo Mission)**	7 Oct	2000	0100	*1/160 & 75th RDG Planners/TF Purple/Durant/ Levarn/Gehring/ A,C,F & G CMSI/19th LNO	Tidwell Hall Yellow Ribbon Room
127 A	**Rock Drill**	7 Oct	2200	0300		
128	ITEMS/JANUS scenario development **(BravoMission)** (optional)	8 Oct	0800-As Req'd	1300-As Req'd	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
129	LUNCH	8 Oct	1130-1245	1630-1745	All	As req'd
130	60K CMS Set-up	8 Oct	1300-1500	1800-2000	CMSI B&A	Wolcott Hall
131	ITEMS/JANUS scenario development **(BravoMission)**	8 Oct	1300-As Req'd	1800-As Req'd	CATI/Gehring/ SOF SIM CTR/ 75th RGR	Frank Hall
132	Final Mission Data Provided to SAF Operators **(BravoMission)**	8 Oct	1400	1900	Gehring	Frank Hall
133	White Cell Daily Brief	8 Oct	1500-1630	2000-2130	All White Cell	Frank Hall

135	COMM-EX Brief (BravoMission)	(8 Oct)	(1515-1530)	(2015-2130)	*Levarn/ Gehring/Durant/ Dean/Carey/ McGee/A, C, F & G CMSI/19th LNO	Frank Hall
136	Power-on/Network Test	8 Oct	1530-1545	2030-2045	Gehring/Levarn/ Dean	Wolcott/Frank Hall
137	COMM-EX (BravoMission)	(8 Oct)	(1545-1615)	(2045-2115)	All Tactical Players/Levarn/ A, C, F, & G CMSI/19th LNO	Wolcott/Frank Hall
138	COMM-EX Debrief (BravoMission)	(8 Oct)	(1615-1630)	(2115-2130)	TF Purple 1-160th	Frank Hall
139	Run FARP > Target (ITEMS) Scenario w/Data Collection and Communication Test (BravoMission)	8 Oct	1600-1730	2100-2230	Gehring/Dean/ Levarn/Durant	Frank Hall
139 A	IG Verification Check w/60K EMS	8 Oct	1630-1800	2130-2300	Preston/Moss	Wolcott
140*	160th SOAR(A) Command Brief	8 Oct	1715-1800	2215-2300	CMD Group	RCR
141	Establish AC-130 ATD TB network connection	8 Oct	1730	2230	LMIS/19th SOS	Wolcott/Frank Hall
142	ITEMS Final Scenario Development Test (BravoMission)	8 Oct	1730-1900	2230-2400	Gehring/CATI	Frank Hall
142 A	60K CMS MSN Prep	8 Oct	1800-1900	2300-2400	1-160 Crew	Wolcott
143	DINNER	8 Oct	As Available	As Available	All	As Req'd
144*	75th RGR RGT Command Brief	8 Oct	1800-1845	2300-2345	RGR RGT Staff	RCR
145*	STOW-A Concept Brief	8 OCT	1845-1945	2345-0045	160th CMD Group/RGR RGT Staff	RCR
146	JSOTF Daily Update Brief	8 Oct	1900	2400	TF Purple/1-160	Tidwell Hall
147	Tactical Update Brief (BravoMission)	8 Oct	1915	2415	All Tactical Players/1-160/ OC/Durant/ Levarn/A, C, F, G CMSI/19th LNO	Tidwell Hall Yellow Ribbon Room
147 A	JOC Stand Up MTG	8 Oct	2000	0100		
148	C2 Crew Update Brief	8 Oct	1930	0030	C2 Crew/OC/ Durant/ Levarn	Frank Hall
149*	VIPs move to Frank Hall	8 Oct	2000-2015	0100-0115	All	RCR-Frank Hall
150*	Introductions	8 Oct	2015-2030	0115-0130	All	Frank Hall
151	Re-Establish AC-130 ATD TB network connection	8 Oct	2100	0200	LMIS/19th SOS	Wolcott/Frank Hall
152	C2 MH-60L Established in Holding	8 Oct	2115	0215	C2 Crew	TBD
153	Bravo Mission Keesler > Target > England w/Data Collection & C2 Aircraft Airborne (H-Hour = 0515Z)	8-9 Oct	2125-0130	0225-0630	All/1-160	Wolcott/Frank Hall

154*	Group 1 walking tour of TOPSCENE, PARIS, High-Bay, Maintenance, JANUS	8 Oct	2200-2245	0300-0345	VIP Group 1/ CMD Group	Frank/Wolcott Hall
155*	3 x 45 minutes 47E CMS flights for select individuals	8 Oct	2200-0015	0300-0515	2x47E CMSIs/ SFC Best	Wolcott Hall
156*	Group 2 walking tour of TOPSCENE, PARIS, High-Bay, Maintenance, JANUS	8 Oct	2300-2345	0400-0445	VIP Group 2/ CMD Group	Frank/Wolcott Hall
157	H-Hour/Actions on the Objective (Bravo Mission)	9 Oct	0015-0115	0515-0615	All/1-160	Frank/Wolcott Hall
158	Recognition of Key Personnel	9 Oct	0115-0145	0615-0715	All/RS1	Frank Hall
159	C2 Aircraft Lands to drop off AMC/GFC	9 Oct	0130	0630	C2 Crew	LZ Serpent
160	Mission Debrief (BravoMission)	9 Oct	0230	0730	All/*1-160	Tidwell Hall
161	After Action Review (BravoMission)	9 Oct	(0300)	(0800)	All/*OCs	Frank Hall
162	End of Day Status/Progress Brief/Technical Debrief	9 Oct	(0330)	(0830)	Durant/Levarn	Frank Hall
163	Determine System Go/NoGo Exercise status	9 Oct	(0345)	(0845)	Durant/Levarn	Frank Hall
164	Present Final Draft Exercise Report to 160th SOAR(A) and 75th RGR Commanders (CANCELLED)	9 Oct	1100-1200	1600-1700	*RS3/Durant	As Req'd
165	Final Status/Closing Comments	9 Oct	1230-1245	1730-1745	Durant/Levarn/ Gehring/McGee/ Preston/ 1x60 & 1x47 Section Leads	Frank Hall
166	STOW-A AAR	9 Oct	1245-1400	1745-1900	*Durant/Element Leads	Frank Hall
167	Redeployment of All Personnel and Equipment	9 Oct	1400	1900	All	N/A
168	Documentation of System/Network Configuration	NLT 12 Oct	1200	1700	STOW-A/LMIS	N/A
168 A	Written Comments to 160th RS3	NLT 26 Oct			ALL	N/A
169	Final Report to 160th SOAR(A)	NLT 9 Nov	1200	1700	STOW-A/LMIS	N/A

Tech Cell = system reps from: CMS, ITEMS, JANUS, PASS, ASTi, Soundstorm, ENEWS, TOPSCENE, Simulyzer, MROC, & PARIS

White Cell = all non-tactical players including OCs, CMSIs, tech cell, purple cell, staff and administrative personnel

Purple Cell = JSOTF staff   AF LNO = JOC calls/MC130/AC130 role player

Personnel/elements underlined in the personnel column are responsible for that event. Briefers are designated by an *

CMSI A = IOS/ATC/Crew Chief 60K, CMSI B = 60k Cockpit, CMSI C = Ch. 2-4 Role Player/Ch. 2 BRT (A-C are 60K CMSIs)

CMSI E = IOS/ATC/Crew Chief 47E, CMSI F = Ch. 5 –7 Role Player/Ch. 5-7 BRT, CMSI G/H = Backup (E-H are 47E CMSIs)

Appendix D-Equipment List

Due to a hardware shortfall at the 160th SOAR (A) facility several items of hardware were procured as well as provided by outside agencies for the exercise. The items procured are listed in the Bill of Materials which is on file in the ADST II CM Library, ADST-II-CBOM-160T-9800346, November 10, 1998. It is recommended that as funding permits that the 160th SOAR (A) procure additional hardware for future exercises. The hardware provided by outside agencies and the functions it performed is listed below:

1. Simulyzer

   One (1) SGI Indy

   One (1) SUN Workstation

   One (1) Indigo 2

2. PASS

   One (1) Indigo 2

3. JANUS

   Eight (8) Hewlett Packard Workstations

4. ITEMS

   One (1) Octane